

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1. (Currently Amended) A digital mammography imaging method, in which the radiation that has passed through the an object is detected on at least one sensor, which the sensor contains containing one or more preferably elongated sensor modules, wherein the said sensor module contains one or more pixel columns which receive image data, 10 in which method the object to be imaged is arranged essentially motionless and is scanned across with a beam which originates from a radiation source, the focus of which the radiation source being essentially motionless in space, the beam being limited to be narrower than the object to be imaged and adapted essentially to the an active surface of the sensor, and in which method the sensor is moved in synch with the scanning movement of the beam while at the same time the said active surface is kept 15 essentially at right angles to the beam on a plane formed by the scanning movement of the beam, wherein movement of the sensor or sensors is implemented by continuously adjusting the distance of the sensor or sensors from the radiation source in a such a way that the its/their trajectory of the sensor or sensors in the direction of the scanning movement of the beam becomes essentially linear. 20

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2. (Currently Amended) Imaging method according to claim 1, wherein the movement of the sensor or sensors is realized by one or more actuators, which may be operated programmatically.

3. (Currently Amended) Imaging method according to claim 1, wherein at least a part of the movements of the sensor or sensors are realized by ~~mechanically~~ mechanically forced control.

5 4. (Currently Amended) Imaging method according to claim 1, wherein ~~the~~ said at least one sensor is moved in a such a way that ~~it~~ the sensor is connected to ~~the~~ a transmission element, which is moved along an essentially linear trajectory and the said connection is realized in such a way that ~~it~~ the connection enables mutual rotational movement of the transmission element and the sensor in the direction of said  
10 linear movement, whereby the said condition of perpendicular orientation of the sensor surface is realized by tilting the sensor or sensors with respect to the said transmission element.

15 5. (Currently Amended) Imaging method according to claim 1, wherein ~~the~~ said at least one sensor is arranged in functional connection with ~~such~~ a control element, ~~which~~ said control element enables altering the distance between the sensor and the control element in the direction of the beam, ~~the~~ said control element is moved along a curved trajectory and the distance between ~~the~~ said at least one sensor and the control element is ~~modified~~ modified during the scanning of the beam in such a way that  
20 the trajectory of the sensor becomes linear.

6. (Currently Amended) Imaging method according to claim 5, wherein ~~the~~ said control element is moved in a guide groove, the curvature of radius of ~~which~~ the guide groove corresponding to the distance between ~~the~~ said control element and the focus

of the radiation source, or ~~it the control element is moved otherwise in some other way~~ along a trajectory being at the said distance from the focus.

5 7. (Currently Amended) Imaging method according to claim 4, wherein the said transmission element or a control element is moved integrated with a pendulum arm, the focus centre of rotation of which said arm being situated on the level of the focus of the radiation source.

10 8. (Currently Amended) Imaging method according to claim 1, wherein the scanning movement of the beam is realized by moving a collimation element that limits the beam with the help of an actuator, ~~which may be operated programmatically.~~

15 9. (Previously Presented) Imaging method according to claim 1, wherein a collimation element that limits the beam is moved essentially in parallel with the said linear movement of the sensor.

20 10. (Currently Amended) Imaging method according to claim 1, wherein the scanning movement of the beam is realized by moving the a collimation element which limits the beam along the a curved path, the curvature of radius of which corresponding to the distance between the said collimator and the focus of the radiation source.

25 11. (Currently Amended) Imaging method according to claim 9, wherein the radiation source is ~~swivelled~~ swiveled and the scanning movement of the beam is realized by moving the said collimation element in mechanical contact with the ~~swivelling~~ swiv-  
eling movement of the radiation source.

12. (Currently Amended) Imaging method according to claim 9, wherein the movement of the collimation element and the linear movement of the sensor or sensors are synchronized mechanically, ~~such as by connecting them to the same pendulum arm, the focus of rotation of which being situated at the level of the focus of the radiation~~  
 5 source.

13. (Currently Amended) Imaging method according to claim 12, wherein the movement of the collimation element and the sensor or sensors in the direction of the scanning movement of the beam is synchronized by connecting them mechanically to  
 10 ~~the a swivelling~~ swiveling movement of the radiation source.

14. (Currently Amended) Imaging method according to one claim 1, wherein the sensor or sensors are arranged to be formed, in the direction at right angles to the plane  
 15 formed by the scanning movement, of at least one sensor column containing two or more modules and the active surface of each of the modules is also positioned at right angles in relation to ~~this said~~ direction with respect to the focus of the beam.

15. (Currently Amended) Imaging method according to claim 1, wherein ~~the said~~ essentially linear movement of the sensor/sensors is realized under ~~the an~~ essentially  
 20 plane-like lower compression paddle structure, in ~~its~~ close proximity to said paddle structure.

16. (Currently Amended) Digital mammography imaging apparatus, which includes  
 25 - a radiation source ~~(13)~~,

- a sensor arrangement ~~(15)~~ for detecting radiation, which arrangement contains one or more sensors ~~(50)~~ formed of one or more ~~preferably elongated~~ sensor modules ~~(510, 510', ...)~~, which sensor module ~~(510, 510', ...)~~ contains one or more pixel columns which receive image data,

5 - means ~~(16, 17)~~ for positioning the object to be imaged, located within the area between the radiation source ~~(13)~~ and the sensor arrangement ~~(15)~~,

- means for limiting the beam ~~(19)~~ from the radiation source ~~(13)~~ essentially according to the ~~an~~ active sensor surface of the said sensor arrangement ~~(15)~~,

- means for moving the beam across the object being positioned to be imaged and

10 - means for moving the said at least one sensor ~~(50)~~ which belongs to the sensor arrangement ~~(15)~~ in synch with the scanning movement of the said beam and keeping the said active sensor surface essentially at right angles to the beam on a plane formed by the scanning movement,

wherein the imaging apparatus ~~(4)~~ includes means for adjusting the distance of the said sensor ~~(50)~~ or sensors from the radiation source ~~(13)~~ in such a way that the trajectory of the sensor ~~(50)~~ or sensors in the direction of the scanning movement of the beam becomes essentially linear.

17. (Currently Amended) Imaging apparatus according to claim 16, wherein ~~it the~~  
20 ~~apparatus~~ includes at least one actuator ~~(20)~~, ~~which may be operated programmatically~~, for implementing the movement of the sensor ~~(50)~~ or sensors.

18. (Currently Amended) Imaging apparatus according to claim 16, wherein ~~it the~~  
~~apparatus~~ includes means for implementing at least a part of the movements of the  
25 sensor ~~(50)~~ or sensors by mechanically forced control.

19. (Currently Amended) Imaging apparatus according to claim 16, wherein ~~it~~ the  
~~apparatus~~ includes means for linearly moving the sensor (50) or sensors and means for  
 tilting the sensor (50) or sensors by a ~~mechanically~~ mechanically forced control along  
 5 with the linear movement.

20. (Currently Amended) Imaging apparatus according to claim 16, wherein ~~it~~ the  
~~apparatus~~ includes a transmission element (28, 40) arranged to be connected to the  
 sensor (50) or sensors and means for linearly moving the transmission element and for  
 10 tilting the sensor (50) or sensors in relation with the said transmission element (28,  
 40) in the direction of the said linear movement.

21. (Currently Amended) Imaging apparatus according to claim 16, wherein ~~it~~ the  
~~apparatus~~ includes a control element (29) arranged to be moved along a curved trajec-  
 15 tory in the direction of the scanning movement of the beam, which control element is  
 arranged in a functional connection with ~~the~~ said at least one sensor (50) in such a  
 way that their mutual distance in the direction of the beam is adjustable.

22. (Currently Amended) Imaging apparatus according to claim 21, wherein in order  
 20 to form ~~the~~ said curved trajectory, the apparatus includes a guide groove (34), the ra-  
 dius of curvature of ~~which~~ said groove corresponding the distance between ~~it~~ the  
~~groove~~ and the focus (42) of the radiation source (43), or ~~either~~ the apparatus includes  
~~some other kind of~~ means for moving the control element (29) along a trajectory hav-  
 ing such a radius of curvature.

23. (Currently Amended) Imaging apparatus according to claim 22, wherein ~~it~~the  
~~apparatus~~ includes a pendulum arm ~~(35)~~, the center of rotation focus of which said  
arm being arranged on the level of the focus (42) of the radiation source (13),  
 whereby ~~the said either a~~ transmission element ~~(28, 40)~~ arranged to the apparatus  
 5 and/or said control element (29, 37), or both them, is attached to the pendulum arm  
~~(35)~~ in such a way that the sensor ~~(56)~~ or sensors may can move in the direction of the  
 longitudinal axis of the pendulum arm ~~(35)~~, or the pendulum arm ~~(35)~~ itself has been  
 arranged to be adjusted by its length.
- 10 24. (Currently Amended) Imaging apparatus according to claim 16, wherein the imag-  
 ing apparatus includes means ~~(20, 21, 22, 23)~~ for moving ~~the a~~ collimator element  
~~(19)~~ that limits the beam essentially in parallel with the said linear movement of the  
 sensor.
- 15 25. (Currently Amended) Imaging apparatus according to claim 16, wherein the appa-  
 ratus includes means for moving ~~the a~~ collimator element ~~(19)~~ that limits the beam  
 along a curved path, the radius of curvature of which corresponding ~~to~~ the distance  
 between ~~it~~ the collimator element and the focus (42) of the radiation source (13).
- 20 26. (Currently Amended) Imaging apparatus according to claim 18, wherein, concern-  
 ing means for moving the collimator element ~~(19)~~ and the sensor or sensors ~~(56)~~, re-  
 spectfully, at least ~~the other are either one of them~~ is arranged in mechanical contact  
with ~~in the said~~ pendulum arm ~~(35)~~.

27. (Currently Amended) Imaging apparatus according to claim 26, wherein the collimator element ~~(49)~~, the sensor ~~(50)~~ or sensors and the radiation source ~~(43)~~ are arranged in mechanical contact with the said pendulum arm ~~(35)~~ in such a way that the said synchronization of the scanning movement of the beam and the movement of the sensor ~~(50)~~ or sensors takes place in a forced manner while the said pendulum arm ~~(35)~~ is moved by an actuator.

28. (Currently Amended) Imaging apparatus according to claim 17, wherein ~~it~~ the apparatus includes actuators ~~(20, 24)~~, ~~which may be operated programmatically, for~~ realizing all the movements of the sensor or sensors ~~(50)~~ and the collimator elements means for limiting the beam.

29. (Currently Amended) Imaging apparatus according to claim 16, wherein the sensor or sensors ~~(50)~~ are arranged to be formed, in the direction at right angles to the plane formed by the scanning movement, of at least one sensor column which contains two or more modules ~~(510, 510', ...)~~, and the active surface of each module ~~(510, 510', ...)~~ is positioned also in ~~this said~~ direction at right angles to the focus ~~(42)~~ of the beam.

30. (Currently Amended) Imaging apparatus according to claim 16, wherein said means for positioning the object to be imaged contain two radiolucent compression paddles ~~(46, 47)~~ or equivalent, said paddles or equivalent having essentially plane like surfaces.